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THE INSECT PEST SURVEY BULLETIN

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OUTSTANDING ENTOMOLOGICAL FEATURES IN THE UNITED STATES FOR JULY, 1923.

The very unusual insect conditions recorded last month continued through July.

Grasshoppers are still attracting major attention throughout the Mississippi Valley and the Rocky Mountain and the Pacific Coast regions, the trouble extending into the Ohio River Basin and the Great Lakes region. In addition to the States reported as being seriously infested with grasshoppers during June, Indiana, South Dakota, Montana, Minnesota, and Nevada were reported in July. In addition to the grasshopper troubles, Utah reports a serious outlook for trouble with the Mormon cricket in the Uinta Valley, one band of these hoppers being 3 miles wide and several times as long.

The alfalfa weevil is established in Sierra County, California.

The Hessian fly infestation throughout the Middle Atlantic States and the Ohio Basin continues below normal, except in New York State, while in the Upper Mississippi Valley the situation is reported as serious in Wisconsin, Missouri, Nebraska, Kansas, and Iowa, and the pest is apparently on the increase in Minnesota and North Dakota.

The greater wheat-stem maggot is materially affecting the crop in Missouri, North Dakota, Nebraska, and Oregon.

The chinch bug infestation is now becoming serious north of the region reported last month. Reports of infestations are coming from southern Michigan, southeastern Iowa, and South Dakota. In Missouri calcium cyanid is proving an excellent material for use in chinch bug barriers.

The stalk borer is rather generally reported from New England, the Middle Atlantic States, the Ohio River Valley, westward to South Dakota, and southward to Missouri.

The garden webworm, both as a truck and as a field crop pest, is reported from Missouri and Kansas. In Kansas some farmers report a total loss of the second cutting of alfalfa.

The apple tent caterpillar was generally abundant over New England and the Middle Atlantic States, with severe infestations also reported from Wisconsin.

An interesting note has been received from Michigan to the effect that the anthicid beetle Notoxus talpa has been riddling the fruit of sweet cherries at Niles.

The rose chafer is epidemic throughout New England and the Middle Atlantic States, south to Virginia and through the Ohio River Valley, and northward to Michigan, while the southwestern species, Macroductylus uniformis, is reported as very abundant in Dona Ana County, New Mexico.

Scutellista cyanea has been discovered in New Orleans feeding on the black scale. This parasite was sent to Dr. H. A. Morgan, then located at Baton Rouge, in 1898 by Doctor Howard. There is no record, however, of its having been taken in the field in Louisiana until the present discovery. It is possible that its occurrence here is due to this introduction.

The sweet potato weevil is now authentically reported from Stephens County, Okla., where larvae were collected early in June.

The Mexican bean beetle is apparently spreading more rapidly than last year in South Carolina, and is now well established over central Tennessee and Kentucky. The last report placed the insect very near the Ohio line.

Wireworms are very seriously infesting onions in the northeastern part of Indiana, where a company reported losses amounting to from \$15,000 to \$20,000.

The July 20 survey of the cotton boll weevil is contained in this number, the pest having been observed over practically the entire Cotton Belt during July.

The cotton worm was observed on July 6 at Baton Rouge, La., where mature larvae were collected. It appeared in Hidalgo County, Tex., as early as June 10, and by July 14 an outbreak extended from Brownsville along the coast as far as Liberty County and inland to the main line of the Southern Pacific Railway. By July 20 leafworms were collected at Forest City, Ark.

The dandelion root aphid is reported as attacking a number of ornamental plants in Indiana and Tennessee, and the iris borer is generally abundant from Maine to Pennsylvania and New Jersey.

A new pest is recorded in this number. The European weevil Phyllobius oblongus, known as a pest to apple buds in England, has been found rather numerous on elms in the city parks in Rochester, N. Y.

The arborvitae leaf-miner and the elm spanworm are both recorded as prominent at several points of the northeastern part of the United States.

A geometrid moth, Eulypa hastata, is occurring in enormous swarms over Maine and northern New Hampshire.

OUTSTANDING ENTOMOLOGICAL FEATURES IN CANADA FOR JULY, 1923.

The rose chafer is present in great numbers and represents as severe an outbreak as has ever occurred in southwestern Ontario. The main centers of infestation are Middlesex, Elgin, Norfolk, Welland, Peel, and York Counties, but it occurs wherever the soil is light and sandy. The fruit of cherries, peaches, apples, pears, plums, and ornamental plants have been freely fed upon by adults.

The apple seed chalcid has been reared from apple seed at Kelowna in the Okanagan Valley, B. C.

The clover-seed chalcid has been found at Lethbridge, Alberta, in the blossoms of alfalfa.

The spring cankerworm has been present in outbreak form in Welland, Norfolk, Northumberland, and Durham Counties of Ontario during the season.

The chinch bug has been found in destructive numbers in a small area 50 miles southwest of Rosetown, Saskatchewan. This outbreak is in an isolated locality 135 miles north of the international boundary and north of the South Saskatchewan River and is of special interest as one of the first records of this species in the Prairie Provinces in destructive abundance. Edges of several fields of early-planted spring wheat adjoining prairie land have been invaded.

Grasshoppers have been particularly numerous in many parts of western Canada. The most severe outbreaks are occurring in southern Saskatchewan, Alberta, and British Columbia. Melanoplus atlanis and M. bivittatus are the species at fault in each of the localities. A general absence of Camnula pellucida is everywhere noted. A notable outbreak of M. packardii is associated with the lesser migratory grasshopper in the southern Okanagan Valley of British Columbia. Here these two species have defoliated young apple trees and small bull pines, and intercrops of vetch and alfalfa have been eaten to the ground.

The forest tent-caterpillar has been very conspicuous in New Brunswick. Caterpillars have been sufficiently numerous to hinder railway trains at several points.

Moths of Eulypa hastata Linn. were very numerous at a number of points in southern Quebec and northern Ontario during early July.

The stalk borer has been reported and submitted for identification on many occasions during the past month at points in the neighborhood of Ottawa, Ontario.

Notable injury has been caused by the iris borer, Macronoctua onusta Grt., at Toronto, Ottawa, and Montreal.

CEREAL AND FORAGE - CROP INSECTS

MISCELLANEOUS FEEDERS

GRASSHOPPERS (Acridiidae)

- Indiana J. J. Davis (July 16): Grasshoppers are more abundant this year than for several years past and, though not in destructive numbers at present, indicate probable trouble in a year or two.
- Wisconsin E. G. Bailey (June 20): Grasshoppers are very serious in localized regions, particularly throughout the northeastern counties.
- Minnesota A. G. Ruggles (July 29): Grasshoppers, Camnula pellucida, have been very busy in the northern half of the State and we have been trying out Kansas, Montana, and Canadian methods of control. We have had numerous reports of grasshoppers in other parts of the State, one right here in Hennipen County being M. bivittatus. Alfalfa and bean fields are being entirely wiped out.
- North Dakota R. L. Webster (July 5): County agents in four of the northwestern and north-central counties report damage by grasshoppers in this week's rye and wheat crop report.
- South Dakota A. L. Ford and H. C. Severin (July 16): Grasshoppers are appearing in the Black Hills country in damaging numbers. The predominating species is Melanoplus bivittatus Say, while there are more Camnula pellucida Scudd. than there have been for several years. We do not expect the damage from this pest that we have had during the past three years.
- Kansas Roger C. Smith (June 26): Melanoplus bivittatus and M. differentialis Thomas nymphs of about the third instar are far more abundant than during average years. There are also quite a few ~~tettigoniidae~~ in the outbreak.
- Texas O. G. Babcock (June 21): A general increase of lubber grasshoppers (Dictyophorus sp.) is recorded from Uvalde, Rock Springs, Sonora, El Dorado, and San Angelo. At present they are in practically all canyons over this region and are now ovipositing.
- C. H. Gable (July 10): The situation in Mason and Llano Counties and isolated areas in northern Gillespie County is serious. They are having a real outbreak. The differentialis grasshopper seems to be the chief offender. In Mason and Llano Counties only about 10 per cent of the land is under cultivation. Pastures showed an estimated infestation of from 5 to 8 hoppers per square yard.

- Montana R. A. Cooley (June 27): A communication has been received from Liberty County that "every inch of country is covered with hoppers. This county seems to be the worst grasshopper spot on the map, and farmers are in a bad way financially."
- Utah I. M. Hawley (June 23): Several species of grasshoppers are doing considerable damage in northeastern Utah and Millard County in western Utah. The demand for amyl acetate has been so great that it is now almost impossible to get it, even at \$5.50 and \$6 a gallon. Sodium arsenate in the bait is giving good control in most places. A few growers in the Uinta Basin are using hopperdozers.
- Stewart Lockwood (July 20): I have just returned to Billings from the Uinta Basin in Utah. The grasshopper doing the damage is M. bivittatus, though there were some atlanis Riley, femur-rubrum DeGeer and packardii Scudd. I found that for the most part the cropped land was not heavily infested with grasshoppers but that there were several rather large sections where M. bivittatus had done all the damage it could. Several large fields of alfalfa were totally destroyed, nothing being left but the coarser stalks. Few parasites were found. From conversations with farmers it would seem that they have witnessed a typical increase in the population of this particular species of grasshopper, i. e., for several years grasshoppers have not been a great factor with the farmers, but last year many fields were slightly damaged and some were destroyed. This year the localities where there were grasshoppers last year are now overrun and many more fields have been damaged to a considerable degree. At the time I was there many of the females were about to deposit their eggs, and it is probable that some had already done this.
- Nevada C. M. Packard (June 25): Hoppers are still small and exceedingly abundant in colonies covering from 5 to 20 acres in Elko County. Cold weather has prevented damage to date, but with warm weather serious injury to all crops seems inevitable.
- Oregon L. P. Rockwood (June 12): Practically all the damage being done in Lake and Klamath Counties can be attributed to Camula pellucida. These hoppers usually oviposit on slight ridges and knolls in the otherwise poorly irrigated area. Reclamations have materially increased the area in which hoppers oviposit. The trouble has been practically continuous for five or six years and seems to be increasing in severity. Stockmen have been compelled to drive stock out of their pastures when they should have been at their best and, in many cases last year, cattle died of starvation on the way to distant mountain ranges. The areas of egg laying are comparatively small and this gregarious habit should be taken advantage of in controlling this pest.

California C. M. Packard (June 11): Grasshoppers are destructively abundant in many of the mountain valleys in Modoc and Siskiyou Counties. Systematic control measures are already under way in Modoc County, where good results are being obtained with the usual poisoned bran bait. The Reclamation Service set aside \$5,000 for the use of settlers in the region around Tule Lake for fighting grasshoppers. Modoc County also furnished the services of five men to assist in mixing and applying poisons. An interesting machine was devised under the direction of the Reclamation Service, consisting of hose and burners to which distillate oil under pressure was conveyed, the whole apparatus being mounted on a truck. About ten acres should be covered at a cost of about \$1 per acre. Practically all of the ~~immature~~ ^{mature} hoppers were killed by this treatment. The truck was driven forward slowly, with two men on foot, one man handling each burner, and each man covering a swath 30 feet wide.

California Weekly News Letter, Vol. 5, No. 14 (July 14): A heavy infestation of grasshoppers is reported from Yolo County. In the control work in this outbreak 5 barrels of molasses, 700 pounds of Paris green, and 250 dozen lemons were used. Hoppers are now fairly well under control, but the cold weather has held back emergence, so that there will probably be heavy control work for the next two or three weeks.

MORMON CRICKET (Anabrus simplex Hald.)

Utah Stewart Lockwood (July 20): Mormon crickets are not in the Uinta valley to any degree as yet but I found them in large numbers on the top of Diamond Mountain, which is a high mesa about 2,000 feet above the floor of the valley. During the trip many bands of crickets were observed, some of them several miles long. One in particular was 3 miles wide and several times as long. All of them were traveling, though each band seemed to be going in a different direction from others. At the end of the trip I could see 75 per cent of the cropped land was very heavily infested, 20 per cent of the grazing land was full of crickets, and the rest had from now and then one to four and five to the square foot. Most of the damage I saw was done to native grasses.

CUTWORMS (Nottuidae)

Wisconsin E. L. Chambers (June 20): Cutworms are damaging corn in 10 counties throughout northeastern and southwestern Wisconsin.

Nebraska M. H. Swenk (June 15-July 1): During the period covered by this report the variegated cutworm, Lycophotia margaritosa Haw., was numerous, but not enough so to be injurious.

Utah I. M. Hawley (June 15): Corn is being injured by several species of cutworms, with a loss of about 25 per cent in some fields near Cedar City.

WHITE GRUBS (Phyllophaga spp.)

- Michigan R. H. Pettit (June 1): I received today a few dozen samples of Lachnosterna, which is reported from Alama, in Kalamazoo County, as having defoliated butternut and walnut trees. It is also reported as working on maples to a less extent.
- Indiana J. J. Davis (July 16): The species involved in the reported hickory defoliation at Connersville on June 11 (see Vol. 3, No. 4, Insect Pest Survey Bulletin, July 1, p. 155) are principally Lachnosterna hirticula Knoch with occasional specimens of gibbosa Burm., fusca Froel., and ilicis Knoch.

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

- New York W. R. Walton (July 30): Professor Crosby reports that partial count indicates that Hessian fly is worse in western New York than last year.
- Maryland P. R. Myers (July 19): The average spring infestation of our plats at Cambridge has dropped from 71 per cent last summer to 6 per cent this summer. This large decrease in infestation is probably due mainly to two factors; first, the protracted emergence of the Hessian fly last fall, in which about 12 per cent of the larvae hatching from late-laid eggs failed to mature; second, the generally late sowing of wheat last fall throughout the East on account of the drought.
- Virginia P. R. Myers (July 19): The average infestation of the Hessian fly in the plats located at Warrenton is 4 per cent less this summer than it was last summer.
- Ohio T. H. Parks (July 19): A wheat insect survey in 32 counties shows no serious damage anywhere. The State average infestation of straws is 4.4 per cent, compared with 10.9 per cent one year ago. In 10 northwestern counties only 9 early-sowed fields were found. These averaged 44 per cent infestation, with one field 94 per cent. The average of 81 fields sowed after the safe dates in 10 northwestern counties was 3.9 per cent of straws infested. The northern half of the State has 6.4 per cent infestation while the southern half has only 0.6 of 1 per cent. No damage is expected this fall.
- Wisconsin Emil Swain (July): This pest caused almost a total loss in the vicinity of Osseo, in Trempealeau County.
- Minnesota A. B. Ruggles (July 23): The Hessian fly is becoming well established in certain sections where winter wheat is being grown.

- Iowa F. D. Butcher (July 24): We examined 30 fields in Page County and easily found the fly in all of them. The damage varies, but averages from 3 to 5 bushels per acre for the county. The total loss is from \$100,000 to \$125,000 on 35,000 acres.
- Missouri L. Haseman (June 27): Reports of serious damage from the Hessian fly have been received from Buchanan County and that vicinity. (July): Stubble records from experimental plats over the State show that the Hessian fly is very abundant and certain to seriously affect the next crop if thorough and concerted efforts at control are neglected. The fly is "coming back" stronger in the southern and northern portions of the State and is less abundant in the central part.
- North Dakota C. N. Ainslie (June 26): There is considerable infestation in Golden Valley County by the spring brood of larvae. Excess moisture in June may cause a partial summer generation that will injure grain just above the joints.
- Nebraska M. H. Swenk (June 15-July 1): During the last two weeks in June the Hessian fly infestation was somewhat more general than was realized on June 15 over the portion of southeastern Nebraska lying west of Cass, Otoe, Nemaha, Richardson, Johnson, and Pawnee Counties. Saunders, Dodge, and Butler Counties seem to be very generally infested, a condition which extends less intensely west to Merrick County, in the general region of the lower Platte Valley. Westwardly along the Kansas border the infestation extends to Redwillow County, Furnas County being very generally infested. However, owing to the excellent growing conditions for the wheat, the loss apparently will be much less than it threatened to be.
- Kansas J. W. McColloch (July 10): Out of 606 crop reporters, 320 reported fly damage on June 16. Infestations are located generally throughout the State. These reports coincide with our surveys, and we have every reason to believe that the data furnish a good idea of the distribution. The spring was cool, with excessive rainfall. (July 11): The second spring brood of the Hessian fly was especially large and caused much fallen wheat at harvest time. The present indications are that the fly will be one of our major problems throughout the remainder of the year. The State has been amply supplied with moisture this year, which again is ideal for the development of the fly.

GREATER WHEAT-STEM MAGGOT (Meromyza americana Fitch)

- Missouri L. Haseman (July): In some fields this spring as much as 25 per cent of the wheat heads were killed by this pest. The infestations were local mostly in the western half of the State.
- North Dakota R. L. Webster (July 3): Infestations in Cass and Richland Counties are causing "white heads" in wheat and other small grains. There is the usual amount of damage.

- Nebraska M. H. Swenk (June 15-July 1): There has been considerable comment concerning the rather large number of whitened heads of wheat destroyed by this pest in some of the eastern counties of the State. This has been particularly true in Saunders County, where a large number of fields are reported as more or less infested. One case of infestation in that county estimated 50 per cent of the heads of wheat in the field whitened, but, as a rule, the damage is small. Lancaster and Colfax Counties report frequent but scattering infestations with this pest. The reports were received from June 16 to 28.
- Oregon L. P. Rockwood (June 23): Early-sown spring grain on hill lands in Scoggins Valley show ragged appearance and a small number of good heads because of injury by these insects combined with rust and some Hessian fly. Conservatively estimated, the least damage by these insects is a toll of 20 per cent of possible heads of wheat. The acreage affected is probably not large. From 15 to 20 acres have been seen so far. Some of the injury has also been caused by Meromyza nigriiventris.

WHEAT JOINTWORM (Harmolita tritici Fitch)

- Maryland P. R. Myers (July 19): There has been an average increase of nearly 1 per cent in the infestation of this insect in our plats at Cambridge.
- Ohio T. H. Parks (July): The wheat jointworm has not damaged wheat in any county. Less than 1 per cent of the straws were affected in 30 of the 32 counties visited on the wheat insect survey. The pest is not increasing.
- Indiana J. J. Davis (July 16): This pest is more abundant this year than for a number of years, particularly in the southern half of the State.
- Missouri L. Haseman (June 27): Many samples of injury from jointworms have been received during the past week. The samples coming in ~~have~~ been from Texas County and that part of the State. I do not think the insect will prove as abundant as in some years. (July): This pest seems unusually abundant this year. It is most abundant from the Missouri River south over the eastern half of the State. However, some severe infestations have been found north of the Missouri River.

WHEAT-SHEATH GALL JOINTWORM (Harmolita vaginicola Doane)

- Ohio T. H. Parks (July 19): This pest is now present in injurious numbers on wheat sown very late in the eastern half of the State and also in the southern and southwestern counties. The pest is on the increase in this area. It has not been found in the northwestern or central western counties.

FALSE WIREWORM (Eleodes spp.)

Colorado C. P. Gillette (July 18): Fewer complaints concerning false wireworms have been received this year so far than during the two preceding years. However, several complaints have come to this office from Logan County through the county extension agent. Through him we have arranged some cooperative work on these worms.

BLACK GRAIN-STEM SAWFLY (Trachelus tabidus Fabr.)

Maryland P. R. Myers (July 19): An examination of material from our plats at Cambridge shows an increase of nearly 2 per cent in the infestation by this insect this summer.

Virginia P. R. Myers (July 19): There has been an increase of nearly 1 per cent in the infestation by this insect in our plats at Warrenton.

ENGLISH GRAIN APHID (Macrosiphum granarium Kirby)

Nebraska M. H. Swenk (July 1): Not since 1899 have there been so many complaints of an abundance of the English grain aphid on the wheat heads in southeastern Nebraska as there have been this spring.

CORN

CHINCH BUG (Blissus leucopterus Say)

Michigan R. H. Pettit (July 19): We had the first report of the chinch bug in this State this morning. It came from Union City, Branch County, where a cornfield is infested.

Ohio T. H. Parks (July 19): Our wheat insect survey revealed some bugs present in the wheat, but there has been no damage to wheat or corn in any county. The corn is already large and will not suffer under the attack of the few chinch bugs present.

Indiana J. J. Davis (July 16): Chinch bugs are abundant and causing injury in many sections of the State in the northern two-thirds. There are not as many reports to this office as last year. From reports the heaviest infestation occurs in White and Jasper Counties.

Iowa H. E. Jaques (July 11): The chinch bug is showing up rather seriously throughout southeastern Iowa and is doing considerable damage to wheat and corn and some of the other small grains. I have been working in some fields in Davis County, where rather heavy damage is being sustained.

Fred D. Butcher (July 14): Chinch bugs have been migrating from small grain for 10 days. They are more severe over a larger area than last year. Lee, Des Moines, Van Buren, Henry, Davis, Wapello, and Lucas Counties report outbreaks.

Missouri L. Haseman (June 27): Complaints regarding the heavy infestation of chinch bugs throughout the State are received daily. I believe we will find that they are more abundant through the central counties and the northern counties of the State when the heaviest migration is on. Weather conditions in the past week have delayed migration practically two weeks. (July): Late spring delayed spring migration and breeding for about two weeks. Rains at wheat harvest (June 15-July 1) caused wild grasses to grow in stubble fields, which held up normal migration to corn. Bugs sifted over for about three weeks. In central Missouri the heaviest movement occurred between July 1 and July 10.

Calcium cyanid as a barrier gave excellent results. For the best results it is applied in the bottom of a furrow at the rate of 1 pound of flakes to from 60 to 100 feet of furrow. The heaviest movement of bugs occurs during the afternoon and the cyanid is applied when the movement becomes heavy around the noon hour. One application will hold the bugs for the rest of the day if the wind is not too strong. Such a barrier is not too expensive to maintain.

Since the bugs reached the corn we have dusted it with powdered calcium cyanid. This has caused some burning on the upper leaves of small corn and in the tassels, but not much on the lower blades or in the boots. With a knapsack duster it requires about 15 pounds of dust to do thorough work. When dust was used full strength it gave practically complete control. Very few that fall as dead ever recover. Some die so quickly they do not withdraw their beaks. The prolonged migration made it necessary to repeat the applications, and even after that a great many bugs are still present in the corn.

South
Dakota

A. L. Ford and H. C. Severin (July 13): The abundant rain this spring has held the bugs in check in most places. The rains were not general, and in those places where moisture is needed the bugs are doing much damage. Wheat and barley seem to be the only grains seriously affected. Corn which is adjacent to wheat and barley is suffering in places. At Geedes much barley and wheat has been ruined and farmers are burning it to protect near-by corn. Many farmers are using dust barriers to protect corn with success. The heavily infested localities are small in area, not being over more than 8 or 10 townships at the outside. This infestation seems to have been working north at the rate of about 30 miles a year, for the past three seasons.

Nebraska

M. H. Swenk (June 15-July 1): The situation concerning the chinch bug has not materially changed since June 15.

Kansas J. W. McColloch (July 20): Adults began to mature about July 14 and eggs are now being deposited. Chinch bugs are more abundant than in the average year with damage ranging from a few rows to as high as 30 acres. The weather has been warm with high rainfall. Fungus and egg parasites are still active.

SUGAR-CANE BORER (Diatraea saccharalis Fab.)

Louisiana T. W. Ingram (July 20): Sugar-cane moth borers are abundant in this section and are doing a large amount of damage to corn. In many cases they have completely destroyed the ear, and in some fields the tops of the stalks have broken and fallen as a result of the borers tunneling.

STALK BORER (Papaipema nitela Guen.)

Maine E. M. Patch (July 21): Frederick H. Jordan from South Portland reports "active in garden corn."

New Hampshire P. R. Lowry (July): This insect has been reported as injuring corn at Concord, Wilton, Gossville, and Winchester. It is somewhat more abundant than in an average year.

Massachusetts E. M. Patch (July 17): O. S. Morse writes from Medford Hillside: "I find them in tomato plants, rhubarb, golden glow, and dahlias." The sample sent was a larva of this species about half-grown.

Ohio T. H. Parks (July 19): This caterpillar is more abundant than in an average year and is still attracting attention as a corn pest, where it is being mistaken for the corn borer. Damage is scattered.

Indiana J. J. Davis (July 16): The stalk borer has been repeatedly reported from all sections of the State. Reports began June 26 and are continuing at the present time. Crops reported attacked are principally tomato, but also corn, wheat, and such flower garden plants as zinnia, Shasta daisy, rose, delphinium, and calendula.

South Dakota A. L. Ford and H. C. Severin (July 14): Damage is not serious, but oat fields show considerable damage through eastern South Dakota. This insect is more abundant than in the average year,

Missouri L. Haseman (July): This pest was very abundant and destructive a little earlier, and many complaints about it were answered.

BILLBUGS (Sphenophorus spp.)

- Indiana J. J. Davis (July 16): The billbug injury at De Motte questionably attributed to Sphenophorus aequalis Gyll. has been investigated by C. R. Cleveland and the original tentative determination verified. Corn injury by billbugs was also reported on June 23 from Monticello.
- Wisconsin W. H. Eastman (June 23): Considerable damage is being done at Sparta, and in Buffalo, Monroe, and Sauk Counties.
- South A. L. Ford and H. C. Severin (July 5): Several reports with
Dakota specimens have been received. Damage is not serious but unusual for this State. Infestations occur in Lincoln and McCook Counties. We had a wet spring but it has been dry for the last two or three weeks.

CORN-SILK BEETLE (Luperodes varicornis Lec.)

- Louisiana T. H. Jones (June 22): W. B. Wheelis wrote from Bogulsa on June 22: "There is a farmer who lives near the camp. He has a young field of corn with velvet beans planted in it. The corn is fine- in silk and tassel. The beans have just about reached the tops of the corn, and there are millions of these beetles feeding on the bean leaves and eating the fresh corn silks off; also they are in the tassel. The farmer is very much worried and they are really doing lots of damage." Adults accompanied the letter.

WIREWORMS (Elateridae)

- Connecticut W. E. Britton (July 6): Three fields are damaged, two only slightly in patches here and there, and one small field is 50 per cent destroyed at Woodbridge.

A CARABID (Bembidion quadrimaculatum L.)

- Maine G. A. Yeaton through E. M. Patch (June 29): We found hundreds of this little black insect. They were apparently feeding on the roots of the corn, because whenever we found a wilted stalk and dug into the soil they scurried in all directions. We could not find anything else around the roots.

ALFALFA AND CLOVER

ALFALFA WEEVIL (Phytonomus posticus Gyll.)

- Utah Geo. I. Reeves (June 25): The alfalfa weevil has neglected its duties somewhat this season. There has not been enough serious damage in Utah to provide material for control experiments. The injury became serious just at the last moment before cutting, having been retarded, as I believe, by the extremely cold weather. The extensions of the weevil territory are slight and do not involve any new counties.

California G. H. Hecke (Quar. Order 34, Amend. 5): "The fact has been determined that the alfalfa weevil exists in the County of Sierra."

ARMYWORM (Cirphis unipuncta Haw.)

Indiana H. F. Dietz (June 22): Armyworm moths are more numerous than in the last three years. They were first observed on June 15, and the abundance of adults may indicate an outbreak of this pest a little later.

J. J. Davis (July 16): Armyworms were sent in from Frankfort on June 28 with the report that they were damaging alfalfa. One Peridroma saucia Hbn. larva was with the several armyworms submitted, but, apparently, it was not responsible for the principal damage.

FALL ARMYWORM (Laphygma frugiperda S. & A.)

South Carolina Philip Luginbill (June 28): Specimens of full-grown larvae were collected today at Columbia, which indicates that migrant moths must have reached this place about June 15 this year.

GARDEN WEBWORM (Loxostege similalis Guen.)

Iowa C. J. Drake (July 27): Garden webworm is reported from several places in the State as very seriously attacking alfalfa.

Missouri L. Haseman (July): This pest has just been reported from west-central Missouri in destructive numbers in alfalfa. The larvae are now nearly full-fed (July 20).

Kansas J. R. Horton (July 6): Young corn is 90 per cent destroyed, early-planted corn only about 10 per cent infested. It is also damaging canteloupes slightly; sweet potatoes severely; peas, beans, cucumbers, radishes, and even Irish potatoes and tomatoes more or less. Pigweed, and ~~Amaranthus~~ are almost destroyed in large patches and about seven other weeds are damaged. (July 13): The outbreaks in alfalfa extend over the entire area of Sedgwick County. They were first noticed about four days after my previous report on this pest. Much of the alfalfa has been cut in the last four or five days. Large numbers of Loxostege have now pupated in soil cells in this latitude. Injury is so severe that the fields have a whitish appearance from a distance, where the leaves are chewed full of holes and webbed together.

Geo. A. Dean (July 7): We have just received a report from Lyon County of the common garden webworm seriously injuring corn. The bottom or low lands of this county have been flooded, and I presume this may have something to do with the worms

moving from weeds and low-growing crops into the corn. However, it is nothing unusual in this State for the webworm to attack various crops.

Roger C. Smith (July 10): This pest has been reported from Manhattan. It is several times as plentiful as during the previous three years. Moths fly up in clouds. They are numerous at lights at night. In young growth of plants before blooming most of the longer stems contain a nest and larva. Larvae are nearly grown now. It is also reported on corn by correspondents. No natural enemies have been observed. Archytas analis Fab. are very plentiful and may parasitize them.

J. W. McColloch (July 12): Reports of injury by this pest have been received from Emporia and Beloit. In both cases the insects attacked pigweed in the field and after killing out these plants moved to the corn. (July 20): Infestations occur in eight counties in the northeastern part of the State. Abundance is much greater than in an average year. Some farmers report a total loss of the second cutting of alfalfa. The weather has been warm with high rainfall.

MEAL SNOUT-MOTH (Pyralis farinalis L.)

Kansas

Roger C. Smith (June 26): Moths have been observed around the haystacks. Only a few larvae have been seen in old stacks. Most of the moths appear bright and newly emerged. There will probably be considerable damage by larvae later. Observations were made at Ashland ~~Emitsa~~, near Manhattan. They are far more plentiful than in an average year, probably three times normal. One to four moths flew up at each beating of the stack with a net. They were not observed at all last month.

SERPENTINE LEAF-MINER (Agromyza pusilla Meig.)

New Mexico

R. Middlebrook (June 25): This pest is attacking a newly planted field of alfalfa, and attacks one variety more than another. Infestation occurs in Dona Ana County. This pest was not present to any extent last year. Its abundance has increased 50 per cent from last month.

NEMATODES

Colorado

C. P. Gillette (July 18): I regret having to report a rather severe infestation of the alfalfa nematode in Fremont County, near Canon City. The county extension agent states that "in some instances whole stands and fields are being killed out." This is the first report of this pest in the State so far as I am aware.

SOY BEANS

TWELVE-SPOTTED CUCUMBER BEETLE (Diabrotica 12-punctata L.)

Indiana C. R. Cleveland (July 16): Diabrotica 12-punctata destroyed acres of soy beans planted in corn at Odell June 27. They completely destroyed plants. Damage was reported as severe last year as well as this.

A BLISTER BEETLE (Epicauta lemniscata Fab.)

Louisiana T. H. Jones: A correspondent from Iota complained of injury by "Spanish fly" to soy beans on June 13, probably referring to this species. Guy Fletcher, of the U. S. Bureau of Entomology, found adults numerous in a vegetable garden near Baton Rouge on June 22.

M I S C E L L A N E O U S

SORGHUM WEBWORM (Celama sorghiella Riley)

Indiana J. J. Davis (July 16): This pest was again reported damaging rye, this last report coming from Salem on June 16.

GRASS MITE (Pediculopsis graminum Reut.)

New York R. G. Palmer (July 7): Twenty per cent of the timothy heads in some fields are affected in Monroe County.

FRUIT INSECTS

APPLE

GREEN APPLE APHID (Aphis pomi DeG.)

- New York C. C. Wagoner (July 15): In Ulster County this insect is present on apple and pear terminals, in some cases requiring control but not in general.
- Indiana B. A. Porter (June 21): A severe outbreak of the green apple aphid is following on the heels of the rosy apple aphid infestation. In many of the young orchards growth has already been stopped. (July 21): This insect is reported as being much less abundant compared with last month. The severe infestation of about a month ago, at Vincennes, has about disappeared.
- Utah I. M. Hawley (June 15): This insect is found in small numbers on trees all over the State, but not in serious numbers.

ROSY APPLE APHID (Anuraphis roseus Baker)

- New York G. E. Smith (July 15): This aphid is causing considerable injury in many orchards in Orleans County.
- Indiana B. A. Porter (June 21): Serious damage has been done by this species throughout southern Indiana, both to foliage and to fruit. The greater portion of the aphids have now migrated from the apple.
- J. J. Davis (July 16): The rosy apple aphid has been more abundant and destructive this year, throughout the State, than for several years.

CODLING MOTH (Carpocapsa pomonella L.)

- Delaware J. F. Adams (July): Serious injury has been noted in several orchards in Sussex County.
- Virginia L. A. Stearns (July 17): Pupation and emergence of the first brood is about over. The maximum period of deposition for first-brood moths occurred from July 7 to 11. The first second-brood larvae left the fruit for cocooning on July 13, and cocooning is on the increase at the present time.
- Indiana B. A. Porter (July 5): The first second-brood moth emerged in the insectary today.
- J. J. Davis (July 16): The codling moth is very abundant in the State, all unsprayed trees being heavily infested.
- Missouri L. Haseman (July): The second brood of the codling moths appeared on the wing in central Missouri from July 5 to 15. In the southern part of the State they emerged a little earlier and to the north a little later.

New Mexico R. Middlebrook (July 16): The codling moth is attacking apples throughout the entire State.

FRUIT-TREE LEAF-ROLLER (Cacoecia argyrospila Walker)

New York G. E. Smith (July 15): This insect is very plentiful in Orleans County this year.

Utah I. M. Hawley (June 13): The fruit-tree leaf-roller is very abundant in Cache and Utah Counties. It is more serious than it has been for several years. We counted 16 new egg masses on a limb 1 foot long.

TENT CATERPILLAR (Malacosoma americana Fab.)

New England and New York A. F. Burgess (June 30): Various reports from New England and New York show that the tent caterpillar was common and abundant over most of this area.

Connecticut E. M. Ives (June 22): Abundance compared with an average year is 1 per cent less, and none are to be found in dusted orchards.

New York G. M. Coddling (May 29): The tent caterpillar is present throughout southern New York in larger numbers than have been known for a number of years.

New Jersey A. F. Burgess (June 23): New egg clusters are very common on wild cherry in the vicinity of Somerville on this date.

Wisconsin O. S. Soholt (June 20): At Washburn, infestation is severe in some areas.

Washington M. J. Forsell (July 7): This pest is very scarce this year in Snohomish County. The larvae were apparently parasitized, as they are hanging dead on the tents. Usually this pest strips all the native alders as well as apple orchards.

FALL WEBWORM (Hyphantria cunea Drury)

New York G. E. Smith (July 15): Not many are to be found in Orleans County, and they are of little account at the present time.

C. C. Wagoner (July 15): The fall webworm is rather general over Ulster County.

New Jersey A. F. Burgess (June 23): Small larvae of the first generation are common in the vicinity of Somerville on this date.

Delaware C. O. Houghton (June 25): Nests of this species are appearing in considerable numbers on fruit trees in this vicinity.

Georgia O. I. Snapp (July 11): This pest is very common on persimmon this year in middle Georgia.

Indiana J. J. Davis (July 16): The fall webworm has been abundant, especially in the southern half of the State. It is conspicuous both in cities and in the country, probably more so in cities.

THREE-CORNERED ALFALFA HOPPER (Stictocephala festina Say)

Utah I. M. Hawley (June 14): Tree hoppers are serious in young orchards and twigs of older trees where alfalfa or sweet clover is abundant. A dormant spray of miscible oil was effective in killing eggs.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

New York G. E. Smith (July 15): The San Jose scale is plentiful on fruit in neglected orchards in Orleans County.

Indiana B. A. Porter (June 2): At Vincennes the first crawling young were observed. (June 21): First-generation crawling young are present in large numbers. Where careless spraying was done, or where the dormant applications were omitted, the fruit is already badly spotted.

J. J. Davis (July 16): The San Jose scale continues as one of the biggest problems of the fruit grower. However, good control was obtained by the new lubricating-oil emulsion, applied during the dormant season, and satisfactory results are also being obtained with the summer applications of this emulsion.

Missouri L. Haseman (July): This pest has met a new check, lubricating-oil emulsion. Many Missouri growers used it in place of the lime-sulphur during the last dormant season. Generally good results are reported, but, like lime-sulphur, the spray kills only those actually hit by it. This pest also is behind its normal schedule, which will probably result in one less brood this year.

New Mexico R. Middlebrook (July): The San Jose scale is reported attacking fruit throughout this State, but pretty well controlled by spraying.

Washington E. J. Newcomer (June 23): Late applications of lime-sulphur do not appear to have been very effective this year. A period of warm weather from April 15 to 17 apparently started the scales growing, and they were largely able to overcome the effects of the spray applied about this time or later. In one case 18 per cent of the scale remained alive, and in another 32 per cent were alive, although the latter orchard was very thoroughly sprayed. Lubricating-oil emulsion killed 99 per cent at this same time.

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

New York R. E. Horsey (June 27): This insect was found on lilacs at Highland Park, but not numerous. Young were moving June 18 for the first time this year. Less than usual are to be found.

G. E. Smith (July 15): This scale is abundant in Orleans County in neglected orchards.

Indiana J. J. Davis (July 16): The oyster-shell scale continues as a big problem in the State. It is particularly destructive to lilac, cornus, and ash. Recently we observed it doing noticeable damage to walnut shade trees at Portland, and incrusts rose twigs were received recently from Veedersburg. Tests with summer sprays applied 10 days to two weeks after hatching gave good control.

Caustic soda fish-oil soap 1 pound, nicotine sulphate 1 ounce, and water 5 gallons gave variable results, but in most cases practically 100 per cent kill. Two per cent lubricating-oil emulsion and Sun miscible oil (a new type of miscible oil) 1 to 40 gave practically 100 per cent control. In no case did the treatments injure foliage.

Colorado

C. P. Gillette (June 26): This insect has become rather abundant in sections of Denver and also in portions of the city of Fort Collins, where it is doing very serious damage, especially to the American ash, the purple lilac, and the Carolina poplar. I have been unable to find the scale upon apple trees or the white lilac bushes. The lice hatched this month in Fort Collins between the 18th and the 21st.

GIANT ROOT-BORER (Prionus laticollis Drury)

New Mexico

W. E. Emery (July 5): This insect is about 50 per cent more numerous than last year and in orchards inspected where this insect occurs there is from 25 to 50 per cent damage in Dona Ana County.

RED SPIDER (species unknown)

New York

W. H. Hart (June 23): This pest was first noticed in increasing numbers on foliage of susceptible varieties this week. It is more abundant on foliage of varieties free from downy covering.

CLOVER MITE (Bryobia praetiosa Koch)

Utah

I. M. Hawley (June 15): This mite is common on apples in many places, and in a few localities it is causing the leaves to turn yellow.

PEAR

PEAR PSYLLA (Psylla pyricola Foerst.)

Delaware

J. F. Adams (May 25): In Camden this insect is numerous on pear trees. (July 5): In Dover one or more orchards are badly infested.

New York

G. E. Smith (July 15): The pear psylla is dangerously abundant in a few orchards in Orleans County, but most orchards are fairly clean.

PEAR-LEAF BLISTER-MITE (Eriophyes pyri Pgst.)

New York

C. C. Wagoner (July 15): In Ulster County these mites are found in goodly numbers in several orchards.

G. E. Smith (July 15): The pear psylla is very abundant in Orleans County in orchards near Holley and Medina. Increase is noted over the past season.

Utah I. M. Hawley (June 15): This pest is more abundant than last year in many places, but not very serious as yet.

PEACH

PEACH-TWIG BORER (Anarsia lineatella Zell.)

Maryland J. A. Hyslop (July 15): The peach-twig borer has infested from 80 to 100 per cent of the twigs in eastern Montgomery County.

California California Weekly News Letter, Vol. 5, No. 13 (June 30): A noticeable decrease in the prevalence of the peach-twig borer is noted in orchards in the Burbank and Lankershim districts of Los Angeles County, as a result of spray applications made last fall for this pest. Orchards which were badly infested last season show from 60 to 70 per cent decrease in infestation as compared with the previous year.

GREEN PEACH APHID (Myzus persicae Sulz.)

New York G. E. Smith (July 15): This aphid is found more generally than usual in Orleans County.

BLACK PEACH APHID (Anuraphis persicae-niger Smith)

California Roy E. Campbell (July 12): The black peach aphid is reported by horticultural inspectors to be particularly numerous this season in the San Fernando Valley. Growers are spraying with nicotine sulphate.

California Weekly News Letter, Vol. 5, No. 13 (June 30): J. B. Marleau, County Horticultural Inspector stationed at Glendale, reports that the black peach aphid is particularly numerous this season on orchards in Glendale, Burbank, and Lankershim districts.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

New York G. E. Smith (July 15): This borer is destructive in Orleans County to trees injured by the peach-tree borer.

Pennsylvania S. W. Frost and E. M. Craighead (July): The fruit-tree bark-beetle, Scolytus rugulosus Ratz., is doing considerable damage to young cherry shoots in certain orchards in Adams County. The work of these beetles resembles the work of the oriental peach moth, but the cavities are much smaller. The injury thus far has been noted only on sweet cherry. This type of injury has previously been noted in literature but is not commonly found.

Alabama W. E. Hinds (June 30): Winter injury to pecans and young fruit trees was severe and is being followed by bark-beetles. These include the fruit-tree bark-beetles in peaches and a species in pecans.

CHERRY

PEAR AND CHERRY SAWFLY (Caliroa cerasi L.)

- Indiana B. A. Porter (June 7): This sawfly is defoliating cherry trees at Vincennes.
- J. J. Davis (July 16): The cherry slug is abundant in some sections of the State, but is probably slightly less severe than a year ago.

BLACK CHERRY APHID (Myzus cerasi Fab.)

- Indiana H. F. Dietz (June 22): This species is very abundant on cherry.
- Wisconsin E. M. Squire (July 2): In Door County this insect is quite plentiful but not very serious.
- Nebraska M. H. Swenk (July 1): The last two weeks in June were characterized by an unusual abundance of aphids of several kinds. From northeastern Nebraska, especially in Pierce and Boone Counties, the cherry aphid was reported doing injury during the third week in June.

AN ANTHICID BEETLE (Notoxus talpa Laf.)

- Michigan R. H. Pettit (June 28): I received word today from Niles, Mich., that a beetle, which Mr. Gentner identifies as Notoxus talpa Laf., has been riddling the fruit of sweet cherries and doing some injury to sour cherries. The owner states that it was necessary to pick the fruit of some trees in order to save it.

PLUM

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

- Maine E. M. Patch (June 27): This insect is reported from Portland attacking Governor Wood cherry.
- Connecticut E. M. Ives (June 22): This insect is reported from Meriden attacking apples and plums, and more abundant than in an average year; frequent sprays ~~ordinarily~~ a day or two apart have given some good results.
- New York G. E. Smith (July 15): In Orleans County this insect is bad near woods and in neglected orchards.
- C. C. Wagoner (July 15): This insect is abundant in general in Ulster County.
- Georgia O. I. Snapp (July 16): No eggs of the second generation have been deposited to date, and it now appears as though the entire Georgia peach crop will move this year without injury from the second brood of curculio larvae. About 4,500 cars of peaches have been shipped to date from Georgia this year, and all of the crop has been remarkably free from "worms." The quality of the fruit this year is the best that has been grown in Georgia since 1918.

RASPBERRY

RED SPIDER (species undetermined)

Ohio E. W. Mendenhall (July 3): Several raspberry plantations are badly infested with red spider in the Dover district west of Cleveland. This pest is doing considerable damage to the leaves of the raspberries

BLACKBERRY

BLACKBERRY CROWN-BORER (Bembecia marginata Harr.)

Colorado C. P. Gillette (July 18): The blackberry crown-borer has recently been reported to this office by County Extension Agent George R. Smith as doing serious damage to raspberry and blackberry plants in Boulder County the past spring. So far as I am aware, this is the first record of this raspberry and blackberry pest inside the State of Colorado. The insect was in the chrysalis stage on July 17.

GRAPE

GRAPEVINE APHID (Macrosiphum illinoisensis Shimer)

Indiana H. F. Dietz (June 22): This species is very abundant on grape.

GRAPE ROOTWORM (Fidia viticida Walsh)

Ohio G. A. Runner (July): Adult beetles of the grape rootworm were abundant on grape foliage on this date.

ROSE CHAFER (Macrodactylus subspinosus Fab.)

Maine E. M. Patch (July 2): The rose chafer has been reported attacking cherry leaves, rose bushes, strawberry vines, and the leaves of young apple trees at Bowdoinham and Portland.

New Hampshire P. R. Lowry (July): The rose chafer has been much more common than usual this year, and considerable damage has been reported.

Connecticut G. V. Smith and E. M. White (July 5-13): Green clover heavily infested with rose-bugs, fed to milk cows, is cutting milk flow perceptibly, and the pests interfere with bee pasturage on sumac. Injured apple leaves are more numerous than usual.

New York C. R. Crosby and assistants: Rose beetles are very much more serious than normally throughout the State, doing serious damage to a great variety of fruit and ornamental plants. Plums and grapes in many cases are a total loss.

Pennsylvania C. A. Weigel (June 11): The rose chafer has been reported from Philadelphia, attacking peonies, roses, and sweet cherry trees.

Delaware C. O. Houghton (June): This insect was first observed on June 3. We have noticed serious injury to rose, plum, grape, and apple.

- Virginia C. A. Weigel (June 4): The rose chafer has been reported from Roanoke attacking flowers, shrubbery, peach, and apple trees.
- Ohio T. H. Parks (June 21): The rose chafer is more prevalent than for several years on cherry leaves, young corn, grapes, roses, strawberries, blackberries, raspberries, and lima beans.
- G. A. Runner (June 28): Vineyards on sandy soils were severely injured by rose chafers during the last two weeks in June in Lake and Ashtabula Counties. (July 15): Numerous reports from Sandusky, Ohio, were received of injury to apple. An orchard visited June 24 showed severe damage, the fruit on a number of trees on a sandy hillside being almost entirely destroyed.
- Indiana J. J. Davis (July 16): In addition to reports of last month, we have received reports of injury from all sections of the State, the crops injured including corn, apple fruit, and peony.
- Michigan R. H. Pettit (June 25): We are getting reports of serious attack on grapes, apples, peaches, and cherries by the common rose chafer, which seems to be worse this year than usual. The whole western fruit belt seems to be the seat of operations.

(MACRODACTYLUS UNIFORMIS HORN)

- New Mexico R. Middlebrook (July 15): This species has been reported from Grant and Dona Ana Counties attacking grapes. It is 50 per cent more abundant, compared with an average year, and 75 per cent more compared with last month.

GRAPE PLUME MOTH (Oxyptilus periscelidactylus Fitch)

- Massachusetts A. F. Burgess (June 30): This insect is reported as quite common on grape in several localities in eastern Massachusetts.

ERYTHRONEURA SP.

- Ohio G. A. Runner (July 2): Grape foliage in many vineyards on the Lake Erie Islands has been severely injured by adults of the overwintering brood of this species.

GRAPE FLEA-BEETLE (Haltica chalybea Ill.)

- New York G. E. Smith (July 15): The grape flea-beetle is abundant in one vineyard near Eagle Harbor in Orleans County.
- Delaware C. O. Houghton (June): This species is considerably more abundant than usual at Newark.

PRIMROSE ~~FLEA~~-BEETLE (Haltica foliacea Lec.)

- New Mexico R. Middlebrook (June): The primrose flea-beetle has been reported attacking grapes at Dona Ana, 10 per cent of the crop being damaged.

CURRENT

CURRENT APHID (Myzus ribis L.)

- New York C. C. Wagoner (July 15): The current aphid is abundant in localized areas in Ulster County.
- Indiana H. F. Dietz (June 22): This species is very abundant on current.

IMPORTED CURRENTWORM (Pteronidea ribesi Scop.)

- New York C. C. Wagoner (July 15): This species is general and quite destructive in some patches in Ulster County.
- Nebraska M. H. Swenk (July 1): Young larvae of the second brood of the imported currentworm were noted at work on currants during the last week in June.

PECAN

FALL WEBWORM (Hyphantria cunea Drury)

- Georgia O. I. Snapp (July 11): The fall webworm appears to be more abundant on pecan trees this year than normally. Numerous colonies were observed on pecan trees today while riding through a section of middle Georgia.
- Louisiana and Mississippi T. H. Jones (July 2): Indications are that the webworm, Hyphantria cunea Drury, is abundant in certain parts of northern Louisiana and is attracting attention especially because of its abundance on pecans. According to a newspaper report, Professor Harned reports the webworm abundant in parts of Mississippi.

APHIDIDAE (species undetermined)

- Georgia O. I. Snapp (July 16): Aphids, the species of which I do not recognize, are very numerous on pecans here.

PECAN-NUT CASE-BEARER (Acrobasis hebesella Hulst)

- Alabama W. E. Hinds (June 30): Case-bearers, especially the pecan-leaf case-bearer, seem to have been doing more damage than heretofore on pecans.
- Louisiana T. H. Jones (June 27): Developing pecan nuts, apparently injured by larvae of this species, have been received from a correspondent.

CITRUS

BLACK SCALE (Saissetia oleae Bern.)

- Louisiana T. H. Jones (June 1): At a meeting of the Louisiana Entomological Society on this date T. F. Catchings, of the U. S. Bureau of Entomology, reported the finding in New Orleans of what appeared to be Scutellista cyanea, feeding on the "black scale," Saissetia oleae. I have since

been informed by Ed. Foster that this identification has been verified. It is interesting to note that this is the parasite that, literature states, was sent to Dr. H. A. Morgan, then located at Baton Rouge, during 1898 by Dr. L. O. Howard. So far as known, there are no records of its being taken in the field in Louisiana until recently. It is possible that its occurrence here is due to the introduction in 1898.

TRUCK - CROP INSECTS

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

- New York G. E. Smith (July 15): This insect is reported from Orleans County as being bad in early plantings.
- Pennsylvania P. R. Myers (July 19): This insect is very abundant in Cumberland County, Pa., this year, and more farmers are spraying than ever before.
- Maryland W. White (July 30): This has been one of the most serious potato beetle years I have observed in eastern Maryland.
- Georgia O. I. Snapp (May 29): Potato beetles were present in destructive numbers on this date in a field where young tomato plants were growing. It was necessary to enforce control measures in this field.

POTATO FLEA-BEETLE (Epitrix cucumeris Harr.)

- New York G. E. Smith (July 15): This insect is very destructive and abundant in Orleans County.
- North Dakota R. L. Webster (July 3): Foliage shows severe damage, and beetles are still abundant on this date.

POTATO LEAFHOPPER (Empoasca mali LeB.)

- Wisconsin J. E. Dudley, Jr. (July): This insect is reported from Dane County, attacking potatoes, probably more abundant at this time than in an average year. Its first appearance was observed about the middle of June, hopperburn also commencing to show up on early varieties.
- Iowa Fred D. Butcher (July 7): Injury is showing on early plantings, severe in the southern part of the State (Henry County), and just showing in northern Mitchell County.
- North Dakota R. L. Webster (July 3): The first adult leafhoppers were observed on potato foliage on this date. (July 18): Nymphs were first observed on potato foliage on this date, but no tipburn is yet evident at Fargo.

STALK BORER (Papaipema nitela Guen.)

Maine E. M. Patch (July 21): Frederick H. Jordan reports 10 per cent or more of his tomato plants riddled by them. He lately found them working in the potato tops.

SWEET-POTATO WEEVIL (Cylas formicarius Fab.)

Oklahoma E. E. Scholl (June 6): The larval stage of the sweet-potato weevil is present at Comanche, in Stephens County. These probably originated from slips grown at Harlingen, Tex.

CABBAGE

IMPORTED CABBAGEWORM (Pontia rapae L.)

New York G. E. Smith (July 15): This insect is attacking cabbage in Orleans County. Butterflies are plentiful and laying many eggs.

Missouri L. Haseman (July): This species has been unusually abundant in home gardens and on cabbage in commercial truck gardens throughout the State.

South Dakota A. L. Ford and H. C. Severin (July 16): This pest appeared in damaging numbers all over the State quite suddenly during the second week in July, and is more abundant compared with an average year.

STRAWBERRY

BLACK VINE WEEVIL (Brachyrhinus sulcatus Fab.)

Utah I. M. Hawley (June 15): This species is abundant in beds in Cache, Salt Lake, and Summit Counties, usually just in spots in fields, but in a few cases they have killed out nearly all plants.

MILLIPEDS

Kansas Geo. A. Dean (June 20): These millipedes are reported from Phillips County for the first time attacking strawberries.

STRAWBERRY ROOT-WEEVIL (Brachyrhinus ovatus L.)

Maine E. M. Patch (July 10): Mrs. Lida Walsh reports this species "in every house in town in large numbers." The adults have the "house" habit in Maine. They get in by the thousands sometimes.

FALSE CHINCH-BUG (Nysius ericae Schill.)

Michigan R. H. Pettit (July 12): Recently we have been receiving complaints from the northern part of the Lower Peninsula of Michigan of the destruction of crops by the false chinch-bug. Today it is strawberries, one-half to two-thirds of the plants in an acre having been killed, at Pelleston.

STRAWBERRY LEAF-ROLLER (Ancylis comptana Froehl.)

- Nebraska M. H. Swenk (June 15-July 1): In Hall County a single serious case of infestation with the strawberry leaf-roller was reported in the middle of June.
- Utah I. M. Hawley (June 15): Many complaints of injury from this insect have been received.

BEANS

SEED-CORN MAGGOT (Hylemyia cilicrura Rond.)

- Utah I. M. Hawley (June 15): Beans near McCormick, Millard County, were about 50 per cent infested and replanting was necessary. They were planted right after a rainy period, when the ground was quite moist.

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

- Kansas J. R. Horton (July 6): Adults of the cowpea curculio continue to puncture the stalks, and doubtless are depositing their eggs in large numbers at this time. The greatest number of weevils to a plant was 8, the average about 3. A few were found on cantaloupe.

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

- South Carolina J. A. Berly (July 16): This insect has been forwarded to this office from points in Oconee, Lickens, and Greenville Counties, apparently spreading more than last year.
- Alabama W. E. Hinds (June 30): The Mexican bean beetle taken at Auburn May 8 has died after having deposited about 400 eggs in seven egg groups. These eggs have practically all hatched. No sign of the beetle has been reported in fields in Lee County, but undoubtedly such infestation occurs.
- New Mexico R. L. Middlebrook (July 11): For some unknown reason the bean beetle has not appeared in the southern half of this State in any numbers and the bean growers of the Mesilla Valley and other southern valleys have had no trouble to date. Usually at this time of the year there are many inquiries. Owing to the fact that few inquiries were received an investigation was made and it was found that there are few insects in comparison with last year and former years and practically no damage is resulting so far. (July 16): Only a few larvae have appeared so far. The first brood is behind time. Few eggs mature. Very few batches have been laid in comparison with former years at Dona Ana. The string bean crop will be off before much damage can result, but the Pinto may get caught.

PEAS

PEA APHID (Illinoia pisi Kalt.)

- Michigan R. H. Pettit (June 2): Mr. Harman visited the Paw Paw and Cassopolis region to examine the pea-louse situation and finds that the large number of plant-lice on alfalfa has dwindled very markedly indeed. He brings back specimens of ladybirds, of Lysiphlebus, of another hymenopterous parasite, and a fungus disease, Empusa aphidis. I also received specimens of alfalfa bearing plant-lice killed in large numbers by this latter fungus disease. I also received word that a large number of plant-lice are appearing in the pea canning region north of Grand Rapids.
- Indiana J. J. Davis (July 16): The pea aphid was abundant and destructive to canning peas at Wabash.
- Wisconsin J. E. Dudley, Jr. (June 25): Ladybird beetles are destroying large numbers, syrphid flies are just getting a good start, and fungus disease is of no importance as yet. Aphids are extremely abundant in some fields of late sweet peas. As many as 800 have been collected in five sweeps of a net.
- Iowa Fred D. Butcher (July 14): An aphid, evidently the pea aphid, was found killing sweet peas on this date.
- Nebraska M. H. Swenk (July 1): The last two weeks in June were characterized by an unusual abundance of aphids of several kinds. In the flower gardens the pea aphid was complained of as doing much injury to sweet peas.
- Utah I. M. Hawley (June 23): Although this plant-louse has been abundant on clover and alfalfa this year, it has not been found in serious numbers on peas up to date. There has been some damage to alfalfa.
- New Mexico R. L. Middlebrook: This insect has been reported from Mesilla Park.

CUCUMBERS

STRIPED CUCUMBER-BEETLE (Diabrotica vittata Fab.)

- New York C. R. Crosby (July 10): This insect has been reported from Woodridge attacking cucumbers. Insects have been received.
- G. E. Smith (July 15): This species is reported from Orleans County as abundant in gardens.
- Wisconsin Leslie Herzog (June 30): This species is reported attacking cucumbers from Wisconsin.
- Missouri L. Haseman (June 27): Reports are being received daily concerning the cucumber beetles. Reports thus far have come from central and southern Missouri, mostly, and the beetles seem to be as prevalent as last year.
- Nebraska M. H. Swenk (July 1): The striped cucumber-beetle began serious injuries to cucurbits about the middle of June.

A CUCUMBER BEETLE (Diabrotica tricineta Say)

New Mexico R. Middlebrook (July 13): Reports from the eastern half of the State indicate that these beetles are doing much damage to cucumbers, cantaloupes and watermelons.

MELONS

MELON APHID (Aphis gossypii Glov.)

Indiana J. J. Davis (July 16): The melon aphid has been unusually abundant on cantaloupes in the southern part of Indiana.

Iowa Fred D. Butcher (July 14): Aphids are very generally present on cucumbers, watermelons, and cantaloupes. Ladybugs and syrphids are fairly plentiful.

California Roy E. Campbell (July 12): The melon aphid is appearing in various fields on single plants, but infestation is scattered and damage slight.

ONIONS

ONION MAGGOT (Hylemyia antiqua Meig.)

Michigan W. L. Ward (June 6): The onion maggot is reported present at Falmouth.

Oregon E. A. Hayes (June 1): Large acreages of onions at Salem, are being damaged by this pest.

WIREWORMS (Agriotes mancus Say and Melanotus sp.)

Indiana J. J. Davis (July 16): Wireworms were reported destroying onions near Albion in the northeastern part of the State. Investigation July 2 revealed two species involved. One company reports losses amounting to from \$15,000 to \$20,000. Wireworms of all ages were found. All of the ground, which is muck, is well drained, but much of it is new ground, and the wireworms were on the whole more destructive and numerous on the newer ground, as might be expected. It was interesting to note that where the seed row was rolled when seed was planted, the onions came up better and made a much greater growth than elsewhere and as a result were least injured. The wireworms appeared about the middle of June, at which time the plants in the rows not rolled were much smaller and the small amount of injury to the plants was much more severe than on the larger plants in the rolled rows; in fact the rolled rows were comparatively little damaged. From all data that could be gathered, comparatively little injury would have resulted, except possibly in the newest ground, had the seed rows all been rolled after planting.

ONION THRIPS (Thrips tabaci Lind.)

Indiana C. R. Cleveland (June 21): The onion thrips are beginning to appear on young onions at Munster, Lake County, on this date.

BEETS

SUGAR-BEET WEBWORM (Loxostege sticticalis L.)

South Dakota A. L. Ford and H. C. Severin (July 5): A serious outbreak occurred on the Cheyenne River in Fall River County, where the worms took practically everything in their path. These were successfully controlled by poisoned bran mash.

Utah I. M. Hawley (June 23): A few fields are infested and growers are starting to spray.

SUGAR-BEET ROOT-MAGGOT (Tetanops aldrichi Hendel)

Utah I. M. Hawley (June 23): Flies are out and depositing eggs now. They are not very abundant, and not much damage is expected.

PALE-STRIPED FLEA-BEETLE (Systema taeniata v. blanda Mels.)

Michigan R. H. Pettit (June 25): Systema blanda is making trouble again on beets, both on sugar beets and on mangels. They also attack beans.

SPINACH LEAF-MINER (Pegomya hyoscyami Panz.)

New York G. E. Smith (July 15): This species is reported attacking beets and Swiss chard in Orleans County, with the statement that it is bad in gardens.

Delaware C. O. Houghton (June): Beets are badly infested by this leaf-miner at Newark this year.

MEALY PLUM APHID (Hyalopterus arundinis Fab.)

Delaware C. O. Houghton (June): This species is appearing in large numbers this year at Newark. There were very few last year.

DISONYCHA N. SP.

Porto Rico George N. Wolcott (June 25): This common pest of beets and Amaranthus spp. had bitten holes in the leaves and killed a large patch of weed, Philoxerus vermiculatus L., growing around a water-hole. Blackbirds, Holoquiscalus brachypterus Cassin, were feeding on the beetles.

ASH-GRAY BLISTER-BEETLE (Macrobasis unicolor Kby.)

Maine E. M. Patch (July 20): This insect is reported from Dodge Pond, Camp Rangeley, as ruining Swiss chard, by Frank L. Badger.

MISCELLANEOUS FEEDERS

WIREWORMS (Elateridae)

Maine E. M. Patch (July 13): This species has been reported from Monmouth attacking sweet corn; I didn't see specimens, but the common species in that locality is Agriotes mancus Say.

Missouri L. Haseman (June 27): Complaints are still being received regarding wireworms, more or less in scattered vicinities over the State.

Utah I. M. Hawley (June 12): Wireworms are doing lots of damage to tomatoes in a few fields in Davis County.

ZEBRA CATERPILLAR (Mamestra picta Harris)

Indiana H. F. Dietz (June 22): The zebra caterpillars are very abundant in and around Indianapolis. This is the first time since 1916 that this insect has been abundant.

NUTTALL'S BLISTER BEETLE (Lytta nuttalli Say)

North Dakota R. L. Webster (July 13): This species is more than usually common on potatoes and beans.

A SYMPHYLID

Utah I. M. Hawley (June 15): This species is very destructive in Davis, Salt Lake, and Juab Counties. This small milliped feeds on everything and is spreading farther each year. It even kills out the weeds where it is abundant.

BANDED FLEA-BEETLE (~~Systena~~ taeniata Say)

Indiana J. J. Davis (July 16): The pale-striped flea-beetle which was reported damaging corn at West Point and Goodland was later reported from other localities. Within the past week this species has been destructive to late canteloupes and cucumbers just coming through the ground at LaFayette.

SOUTHERN FIELD - CROP INSECTS

COTTON

BOLL WEEVIL (Anthonomus grandis Boh.)

General Distribution B. R. Coad and assistants: The boll weevil survey up to July 20 indicates that the weevil has appeared in the cotton fields over practically the entire Cotton Belt. The present limits are within a line extending from Hidalgo County, in southeastern Texas, in a northwesterly direction through Bexar County to Cole County and Mitchell County, thence eastward to Montague County, in the northeastern part of the State, thence across the State line in a northwesterly direction to Tillman County, Okla., thence northeastward to the east-central part of the State in Okfuskee County, thence eastward into north-central Arkansas through the southern part of Polk County, to the northeastern part of the State in Sharp County, thence across the Mississippi River to the northwestern corner of Tennessee in Obion County, thence in a southeasterly direction through Decatur and Hardin Counties and along the northern border of Mississippi and Alabama, across the northern part of Georgia, including the entire State of South Carolina and northeasterly through Cleveland County, N. Car., and eastward across this State through Iredell, Stanly, Moore, Cumberland, and Wayne Counties, covering the southern third of the State. The region south of this line is generally infested.

Alabama W. E. Hinds (June 30): There is a very heavy survival of boll weevils throughout the southern half of two-thirds of the State, and it may be also through the northern part of the State. In some counties weevils are reported as being more numerous in the cotton fields at the time the squares begin to form than ever before. At Auburn in some experimental plat work we are finding from 50 to 100 weevils per acre at the time squaring begins on land that has not been in cotton during the past six years, which indicates an unusually abundant movement from cotton field areas to newly planted cotton fields, I think the heaviest I have ever known.

COTTON APHID (Aphis gossypii Glov.)

Georgia O. I. Snapp (July 15): Cotton aphids have been observed in numbers on cotton at Fort Valley.

COTTON CUTWORM (Prodenia ornithogalli Guen.)

Louisiana T. H. Jones (July): Larvae were sent in from Pleasant Hill on July 3 and from Long Bridge on July 6.

BOLLWORM (Heliothis obsoleta Fab.)

Louisiana T. H. Jones (July): Larvae were received from Dubberly (Webster Parish) on July 10 and from Grant Parish on July 14.

COTTON SQUARE-BORER (Uranotes melinus Huebn.)

Louisiana T. H. Jones (July): Larvae were sent in from Pleasant Hill on July 3 and from Long Bridge on July 6.

~~METACHROMA~~ ANTENNALIS WEISE

Porto Rico Geo. N. Wolcott (June 25): For the past two years these beetles have been reported as injuring cotton at Quebradillas. This year large numbers were found in spider nests and curled-up leaves of a number of bushes on the beach at Arecibo. An extended examination of many cotton fields, both near by and throughout the cotton district, near the beach and back in the hills, failed to discover any of them on cotton.

PYRALID (undetermined)

Louisiana T. H. Jones (July): We received letters on July 2, 4, and 6 from Gloster complaining of injury by a caterpillar that "seems to stay on the under-side of the leaf of cotton, and there is always present a kind of web." The correspondents reported considerable damage being done in the section and it was reported that one farmer was applying calcium arsenate for control of the worms. Two larvae were sent in.

GARDEN WEBWORM (Loxostege similalis Guen.)

Arkansas T. E. Holloway and B. R. Coad (July 12): Dwight Italy, Associate Entomologist, Arkansas, reports in the press of July 8 the presence of the garden webworm. Reports reaching him indicate that the insect is doing considerable damage to cotton in the vicinity of Roland.

COTTONWORM (Alabama argillacea Huebn.)

Louisiana T. H. Jones (July 6): Two larvae, practically full-grown, were noted in cotton field at Baton Rouge.

Texas T. C. Barber (July 14): In regard to the appearance of the cottonworm in the Brownsville section, I would state that it has been in this section for more than the past month. The first occurrence of which I heard was on last June 8, when it was reported to be present in the vicinity of Rio Gordo. On June 10 it was reported from several localities in Hidalgo County. The first specimens which I saw personally in Brownsville were on the Piper Plantation, 6 miles east, on June 14, but the plantation men told me that they had been there for about three days then, and poisoning operations were just being commenced on a large scale. Towards the end of June cooler weather with cloudiness and frequent rains, which washed off the greater portion of the poison almost

as soon as applied, resulted in an outbreak of the worms which has absolutely got beyond control. During the few days I was away on my trip nearly all of the cotton in the Valley was defoliated. It is rather difficult to estimate what the actual loss from the attack will be, since a large portion of the cotton crop is already opening, several hundred bales a day being ginned in the Valley. While the late cotton will be severely injured, the loss will be partially offset by the boll weevil loss which would have been experienced in the absence of the worms. At the present time the outbreak of the cotton caterpillar extends from Brownsville along the coast as far as Liberty County. Inland the northern limit of severe injury coincides just now with the main line of the Southern Pacific Railway.

T. E. Holloway and B. R. Coad (July 12): The cotton leafworm is reported as present in cotton fields in the vicinity of Nacogdoches, the demand for arsenicals being stimulated there.

Geo. A. Maloney: Farmers of Carthage, Panola County, report the presence of the cotton leafworm on July 5. Also the State Entomologist reports through the press of July 15 an unusually heavy infestation of leafworm throughout southern Texas as far north as Travis County.

Arkansas

Dwight Isely (July 20): The cotton leafworm was collected at Forrest City, St. Francis County, on July 18.

Porto
Rico

Geo. E. Wolcott (June 25): One live pupa was found at Hatillo, one empty pupal skin at Garrochales. These are the first records this year of Alabama in Porto Rico, not a trace of it having been found at Boqueron two and four months ago after the outbreak of last fall and winter had been eliminated by Chalcis incerta Cresson.

TOBACCO

CUTWORMS (Noctuidae)

Connecticut

John Fay (June 22): Cutworms are attacking tobacco at Portland. They are much more destructive than in an average year with 15 per cent damage. Poisoned bait, hunting for worms by hand, and poisoned plants are the remedies used.

TRUE WIREWORMS (Elateridae)

Kentucky

A. C. Morgan (June 21): At Lexington some fields with 50 to 60 per cent infestation have sufficient injury to require 10 to 15 per cent resetting. Practically every field has some infestation.

TOBACCO BUDWORM (Heliothis virescens Fab.)

- Georgia A. C. Morgan through T. E. Holloway (July 10): This pest is very general around Tifton.
- Louisiana T. H. Jones (June 21): During a visit to the Perique tobacco section, St. James Parish, larvae were noted to be common, especially on shoots that had come up from plants in fields already harvested. The county agent believes this to be the most important insect pest of tobacco in this section.

TOBACCO SUCKFLY (Dicophus minimus Uhler)

- Florida F. S. Chamberlin (July 14): This insect is very abundant at present. The tobacco crops were harvested in time to prevent damage.

A WEBWORM (Acrolophus popeanellus Clem.)

- Tennessee A. C. Morgan (June 21): Damage occurred in only a few fields. The infestation in the worst fields ran as high as 80 per cent.

~~HORNWORM~~ (Protoparce spp.)

- Louisiana T. H. Jones (June 21): During a visit to the Perique tobacco section, St. James Parish, hornworms of various sizes were noted to be fairly common. P. sexta was more numerous than P. quinquemaculata. The county agent reports that hand-picking is the only remedy used, though the larvae cause severe injury in some fields during some years.

RICE

RICE STALK-BORER (Chilo plejadellus Zinck.)

- Louisiana J. W. Ingram (June 26): Both the larvae and pupae of the rice stalk-borer have been found in the tall grass, commonly called bull grass, growing near the rice fields at Crowley. No stage of the borer has been found in the rice fields up to this time.

SUGAR-CANE BORER (Diatraea saccharalis Fab.)

- Louisiana J. W. Ingram (July 20): I visited a field of headed rice 2 miles west of Rayne. The field was about 1 per cent infested with moth borers. The borers were more numerous in the rice on the higher land and on the levees. No rice stalk-borer were found in this field.

RICE WATER-WEEVIL (Lissorhoptrus simplex Say)

Louisiana J. W. Ingram (July 21): The rice water-weevil has been doing its usual amount of damage this year. The damage is most noticeable along water furrows and deeply flooded portions of fields.

SUGAR-CANE

FALL WEBWORM (Laphygma frugiperda S. & A.)

Louisiana T. E. Holloway and W. E. Haley (July 5): Large larvae of this pest are on nearly every plant in some parts of a plantation near New Orleans. The cane will recover, however, from the damage so far inflicted. There is some evidence of a braconid parasite which may hold the species in check. The season has been wet and cool.

SUGAR-CANE BORER (Diatraea saccharalis Fab.)

Louisiana T. E. Holloway and W. E. Haley (June 25-26): Considerable numbers of young plants killed by this pest were found in some fields. The damage is not so great at present, but it indicates serious damage later in the season. Many egg clusters of the sugar-cane borer were found, most of which were parasitized by Trichogramma minutum Riley.

ROUGH-HEADED CORN STALK-BEETLE (Ligyris (Euethiola) rugiceps Lec.)

Mississippi R. W. Harned: We are still receiving many complaints in regard to L. rugiceps. This insect has apparently done a large amount of damage this year to corn and sugar cane. The complaints are still coming in almost every day, but are not as numerous as they were a month ago.

Louisiana T. H. Jones (June 25): A beetle and stalk of sugar cane showing injury by this beetle were sent in by the county agent from Farmerville.

FOREST AND SHADE-TREE INSECTS

MISCELLANEOUS FEEDERS

PERIODICAL CICADA (Tibicen septendecim L.)

BROOD XIV (SEVENTEEN-YEAR RACE)

- New York J. J. Levison (July 17): The 17-year locust was exceedingly abundant on an estate at Cold Spring Harbor and elsewhere in the vicinity of Sea Cliff, L. I. They were so thick that we shoveled them up in pailfuls.
- Pennsylvania P. R. Myers: A few adults, numerous pupal skins, and chimneys of this insect were observed along the mountains near Duncannon, Perry County, on May 27.
- S. W. Frost (July 17): The 17-year locust was found at many places in Adams County. Only in a few places has the injury been found serious to orchards and in these places the injury was principally along woods. Both peach and apple were attacked in such cases. The locusts are quite numerous in the woods and the dead leaves from broken twigs are very conspicuous.
- Parker T. Barnes (July 10): Reports indicate that this brood appeared over central and southeastern Pennsylvania, west to Franklin, Huntingdon and Clearfield Counties, and north to Clinton, Lycoming, and Luzerne Counties.
- Ohio T. H. Parks (July 19): Brood XIV adults have seriously injured some young orchards in Lawrence and Scioto Counties. These orchards were usually closely associated with native timber. Forest trees now testify to the visit of the cicadas.
- Kentucky A. C. Morgan (June 21): A belt of a mile or more at Bloomfield and Hodgenville was noticed June 14, numerous enough to drown the sound of a passing auto.

A NEW PEST (Phyllobius oblongus L.)

- New York R. E. Horsey through M. D. Leonard (July 17): A European beetle on elm was common June 2 to 9, the last two being found July 6. It did little damage and we did not spray for it. I only saw it on three American elms 50 feet or more tall, about 40 years old, which were here before this became park property. Across the road is a large collection of crab apples from northeastern Asia and North America where no trace of this insect has been found.

M. D. Leonard: On June 2 Mr. Horsey sent specimens to this office with a statement that the beetles were very abundant and doing some damage to the leaves of elm trees in Highland Park by eating holes in them. The insect was determined by Dr. Schwarz, who states that this snout-beetle had not been found before in this country. It is recorded from England as feeding upon apple buds, and it is thought that there is some likelihood of its developing into a pest should it become established in this country.

FALL WEBWORM (Hyphantria cunea Drury)

Indiana

B. A. Porter (June 21): An outbreak of this species seems about to occur in the region about Vincennes. Many nests are already in evidence.

Kansas

Geo. A. Dean (June 22 and 25): Infestation occurs at Edwardsville and Manhattan on elm and box elder. The webworms are more abundant than in an average year. From May 1 to 16 it was rainy and cool and from May 16 to 25 hot and getting dry.

FOREST TENT-CATERPILLAR (Malacosoma disstria Huebn.)

Massachusetts A. F. Burgess (June 30): Several reports indicate that this insect is common over most of New England. No serious defoliation is reported, however.

Idaho

J. C. Evenden (June 26): Throughout the northern part of the State the wild cherry is being defoliated by this insect. The attack in many places spreads to other native shrubs, but the favored host plant is apparently the wild cherry.

Oregon

A. L. Lovett (June 22): This has been the season for an unusual outbreak of tent-caterpillars. Here in Oregon they seem to come in rather definite seven-year cycles. In 1915 they were very bad, but were practically cleaned out entirely by a Tachinid parasite in 1916. Last year they were serious and this year the climax of the infestation is here, and again we find somewhere in the neighborhood of 90 to 95 per cent parasitism by this Tachinid fly. I note that the eastern tent-caterpillar likewise is unusually prevalent this year. Another interesting thing to me in connection with these caterpillar outbreaks is the practically absolute absence of hymenopterous parasites.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Georgia

O. I. Snapp (July 20): Bagworms are unusually abundant in this section this year, attacking principally arborvitae and other evergreens. Some arborvitae have been completely defoliated. Arsenical spraying had to be resorted to.

Indiana E. J. Davis (July 16): Bagworms have been destructive to arborvitae, cedar, and other trees in the southern fourth of the State, reports coming in the last of June and early in July.

Kansas J. W. McColloch (July 20): This species is attacking cedars in Wabaunsee, Shawnee, and Osage Counties in the northeastern part of the State, and in Greenwood, Wilson, and Sumner Counties in the southeastern part. This insect is somewhat more abundant than in an average year, badly defoliating trees in some places. The weather has been warm with high rainfall.

ELM SPANWORM (Ennomos subsignarius Huebn.)

New York C. R. Crosby (July 9-10): A great flight of moths was observed from Newark to Niagara Falls on the 12th. A few came to lights at Lilly Dale.

Ohio T. H. Parks (July 19): These larvae were numerous on shade trees in East Liberty, Logan County, during June and caused defoliation. Adults were appearing during early July.

Indiana J. J. Davis (July 16): Additional records have been received of the snow-white linden moth. Infestation occurred in a strip several counties wide through the central part of the State, east and west from near the Illinois line to the Ohio State line. The white moths were reported as being abundant in several sections July 1.

H. F. Dietz (June 22): The snow-white linden moth is very abundant this year in the northern two-thirds of the State. Ash, basswood, hard maple, beech, elm, hackberry, water beech, and ironwood are being seriously defoliated. The caterpillars at this time are almost full-grown. Although last year between 50 and 75 per cent of the larvae collected around Indianapolis were parasitized by Pimpla inquisitor (?) and an undetermined tachinid, this has not reduced the numbers of the pests this year.

ORIENTAL MOTH (Cnidocampa flavescens Walk.)

Massachusetts A. F. Burgess (June 30): This insect is abundant in the vicinity of the Dorchester and Roxbury districts of Boston and quite abundant in the Norfolk Downs district of Quincy, also common in Winthrop. It is found on various shade and fruit trees, though it seems to be most common on Norway maple.

ARBORVITAE

ARBORVITAE LEAF-MINER (Argyresthia thuella Pack.)

Maine E. M. Patch (July 20): This pest is causing consternation in nurseries and to landscape gardeners. I judge the work is done for this season.

- Vermont Geo. M. Coddington (May 29): On a trip through Vermont last week I noticed that a leaf-miner was rather common on the hemlock and have also found it around New York.
- Connecticut Geo. M. Coddington (May 29): We found a leaf-miner in Stamford doing considerable damage to an arborvitae hedge.
- New York M. D. Leonard (July 7): This insect has been common in Rochester parks for years but is not injurious. R. E. Horsey reports the finding on July 2 of one chrysalis and two larvae.

ASH

ASH BORER (Podocesia fraxini Luger)

- North Dakota C. N. Ainslie (June 30): Ash trees 15 to 20 feet high are riddled with larval mines and are being killed. It also attacks lilacs. Twenty and more empty pupae were observed extending from a single small ash tree. The trouble seems local, neighboring towns free.

ASH EPHID (Pemphigus fraxinifolii Thom.)

- Nebraska M. H. Swenk (June 15-July 1): The last two weeks in June were characterized by an unusual abundance of aphids of several kinds. Reports of the curling of the ash leaves by the ash aphid were received.

BEECH

WOOLLY BEECH APHID (Phyllaphis fagi L.)

- New York M. D. Leonard (June 20): The walks in the town of Cannister were reported spattered with honeydew. Beech trees are looking bad.
- R. E. Horsey (June 27): On purple and other small European beech trees at Rochester this insect is very numerous on the underside of the leaves. It is sprayed and controlled with soap and Blackleaf 40. It was noted about June 12 and sprayed about a week later.
- Indiana H. F. Dietz (June 22): This is a bad plant-louse year, this species being very abundant on the leaves of the native beech (Fagus grandifolia Ehrhart). Leaves of large trees are badly curled by this pest around Indianapolis.

BIRCH

SPEAR MARK (Eulypa hastata L.)

Maine E. M. Patch (July 20): Rheumaptera hastata is swarming all over the State. I am besieged with alarmed questions.

Carl Heinrich: Referring to E. hastata Linn, all the data we have on this insect are to be found in Packard's Fifty Report, page 503, under the heading Rheumaptera hastata. The caterpillar has several food plants—Betula, Myrica, sweet gale, wax myrtle, huckleberry, and Rhododendron are recorded. The species overwinters as pupa, the moths issuing in spring. There are probably two generations a year.

New Hampshire T. E. Snyder (July 26): The only record in this office of this insect reads, "moths which have been found in great numbers this summer in our timber holdings in northern N.H."

BRONZE BIRCH BORER (Agrilus anxius Gory)

New York M. D. Leonard (July 17): All birches of the cut-leaved variety observed in the city parks and streets of Albany are dying or have died. The City Forester reports that this city has lost most of its finest cut-leaved birches from this insect.

BOXELDER

BOXELDER APHID (Periphyllus negundinis Thos.)

Utah I. M. Hawley (June 13): The boxelder aphid is abundant in Davis, Salt Lake, and Utah Counties.

A LEAF-ROLLER

Utah I. M. Hawley (June 13): The caterpillars of a leaf-roller are stripping the trees in Davis and Salt Lake Counties. They spin down on threads and cover weeds and trunks of trees with silk.

ELM

EUROPEAN ELM SCALE (Gossyparia spuria Modeer)

New York M. D. Leonard (July 7): R. E. Horsey reports that the young are now active at Rochester.

Indiana H. F. Dietz (June 22): The European elm scale is a very serious American elm pest in the northern part of Indianapolis, where the infestation is slowly spreading.

- Wisconsin Mike Quann (July 12): Several elms in Madison, Dane County, are severely infested.
- Nebraska M. H. Swenk (June 15-July 1): During the last week in June a case of infestation of elms in the city of North Platte, Lincoln County, with the European elm scale came to notice, the first finding of that pest in the State.
- New Mexico R. Middlebrook (July 7): This is a new insect in this State. The northern half of the State is badly infested this year with this pest.
- Idaho J. C. Evenden (June 26): Nearly every shade tree in the city of Coeur d'Alene is heavily infested with this insect. Many property owners have secured relief by washing the trees with a strong stream of water.

WOOLLY ELM APHID (Eriosoma americanum Riley)

- Maine E. M. Patch (July 2): The county agent from Belfast reports this insect as attacking trees.
- New York C. R. Crosby (July 3): Infested twigs have been received from Hornell.
- Delaware C. O. Houghton (June): Elm trees on the University grounds at Newark are badly infested this year.
- Nebraska M. H. Swenk (June 15-July 1): The last two weeks in June were characterized by an unusual abundance of aphids of several kinds. The leaves of the elm were on many trees being curled by the woolly aphid, which was also plentiful.

ELM COCKSCOMB GALL (Colopha ulmicola Fitch)

- New Jersey H. B. Weiss: The cockscomb gall of elm is more plentiful than usual in the northern half of the State.

ELM LEAF-MINER (Kaliotompa ulmi Sand.)

- New York M. D. Leonard (July 17): This insect has caused slight injury to Camperdown elms in this city of Albany. Nicotine sulphate was used about two weeks ago by the City Forester with good success.

HICKORY

SPRING CANKERWORM (Paleacrita vernata Peck.)

- New York R. E. Horsey (June 11): This species is attacking hickory at Seneca Park, Rochester. They are considerably less than last year but quite numerous. They prefer the hickories, mostly pignuts, but were found on the white and red oaks,

witch hazel, red maple, native hawthorne, domestic and wild cherry, basswood, shingle oak, white ash, and American elm. Flowering dogwood, spicebush, sassafras, and tupelo had very few on them even when next to badly infested hickories.

LARCH CASE-BEARER (Coleophora laricella Huebn.)

Maine

E. M. Patch (June 26): John Kellenberger reports a good many trees being affected at Rockland. This insect is also abundant near Bangor this year.

A. F. Burgess (June 30): This species is reported as common on larch in Penobscot, Oxford, and Hancock Counties.

LOCUST

LOCUST BORER (Cyrtene robiniae Forst.)

New York

M. D. Leonard (July 17): Most of the black locusts in the City parks at Albany are very generally infested. Considerable good was done two years ago by the application of a tree wash, as reported by the City Forester.

J. J. Levison through M. D. Leonard (July 17): The locust borer is doing considerable damage to locusts in various parts of Long Island.

MAPLE

GREEN-STRIPED MAPLE WORM (Anisota rubicunda Fab.)

Kansas

Geo. A. Dean (June 25): This species is reported from Delia, Jackson County. Trees are defoliated. It was rainy and cool from May 1 to 16 and hot and dry from May 16 to 25.

Iowa

F. D. Butcher (July 24): In a maple grove on a farmstead in Page County the caterpillars stripped about one-third of the trees. Most of them have pupated. This is the only report this year.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

New York

C. R. Crosby (July 16): Infested silver maple twigs were received from Elmira.

Indiana

J. J. Davis (July 16): The cottony maple scale continues as a serious shade-tree pest in the northern half of the State but possibly not quite as generally severe as last year. The first young were observed at Portland July 3. They may have begun to hatch a day or two before.

OAK

OAK LEAF-ROLLER (Tortrix quercifoliana Fitch)

Connecticut Geo. H. Hollister (June 23): This species has been reported on pin: oak from Hartford.

PINE

PINE-LEAF SCALE (Chionaspis pinifoliae Fitch)

New York R. E. Horsey (June 27): On pines in Highland Park, Rochester, just beginning to hatch. This pest has been about eliminated from Highland Park by the soap and Blackleaf 40 spraying. Before we found this remedy, some pines were so infested we talked of destroying them, but now they are in fine condition.

PINE BUTTERFLY (Neophasia menapia Feld.)

Idaho J. C. Evenden (June 15): Countless numbers of the little caterpillars are to be found on the foliage of the pine trees at this time at Payette Lakes, and unless the natural enemies of this pest are able to reduce their numbers there will be a recurrence of the 1922 epidemic of this insect. Thousands of acres of yellow pine were defoliated last season.

A PINE LEAF-MINER (Epinotia meritana Heinrich)

Utah I. M. Hawley (June 23): This insect, which has been known for several years in Hiawatha Canyon near Price, has killed many trees of balsam pine. The needles are mined, drop off, and the trees do not live more than two years after the infestation begins. The outbreak is spreading each year.

PINE BARK-LOUSE (Chermes pinicorticis Fitch)

Wisconsin S. B. Fracker (July 1): This species is reported as abundant in several nurseries in the southeastern part of the State.

MOUNTAIN-PINE BEETLE (Dendroctonus monticolae Hopk.)

Montana J. C. Evenden (June 1): The infestation which began in the Missoula National Forest in 1913 and which has spread both north and south is still in existence, and a tremendous volume of timber is destroyed annually in the Helena National Forest.

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AN APHID (Dilachnus strobi Fitch)

Wisconsin S. B. Fracker (June 22): This insect is destructive at St. Croix Falls, Polk County.

NANTUCKET PINE MOTH (Rhyacionia frustrana Comst.)

Louisiana T. H. Jones (June 25): Infested twigs were sent in from Bogalusa with a letter complaining of injury to young loblolly pines.

ABBOT'S WHITE PINE SAWFLY (Lophyrus abbotii Leach)

Wisconsin Simon Maloney (June 20): This insect is attacking jack pine in Marinette and Dane Counties.

POPLAR

POPLAR BORER (Saperda calcarata Say)

Nebraska M. H. Swenk (June 15-July 1): Continued reports are received of injury by borers of various kinds, principally the poplar borer.

SATIN MOTH (Stilpnotia salicis L.)

New Hampshire P. R. Lowry: Inspection has shown this species to be present as far north as Concord and Dover. The first adults were observed July 5.

SPRUCE

SPRUCE BUDWORM (Tortrix fumiferana Clem.)

Wisconsin A. J. Riker (July 1): This species is reported on balsam in Waukesha County. It is worse than usual in nurseries.

COTTON RED SPIDER (Tetranychus telarius L.)

New York J. J. Levison through M. D. Leonard (July 17): The red spider was abundant on red cedars and spruce in the vicinity of Sea Cliff.

Nebraska M. H. Swenk (June 15-July 1): Evergreen trees, and in one case apple trees, were reported as being injured by the red spider.

CEDAR

RED CEDAR BARK-BEETLE (Phloeosinus dentatus Say)

Nebraska M. H. Swenk (June 15-July 1): In Merrick County a grove of red cedars in a public park was found being badly injured by a species of bark-beetle believed to be P. dentatus.

TULIP

TULIP SPOT GALL (Thecodiplosis liriodendri O. S.)

New York M. D. Leonard (July 17): A large tree in Washington Park, Albany, has the foliage badly disfigured by numerous galls.

INSECTS ATTACKING GREENHOUSE
AND ORNAMENTAL PLANTS

ASTERS

ROOT APHID (not determined)

- Maryland C. A. Weigel (June 13): Root aphids are reported from northeastern Maryland.
- Ohio C. A. Weigel (July 9): Root aphids are reported from Chillicothe.

DANDELION ROOT APHID (Trama erigeronensis Thos.)

- Indiana H. F. Dietz (June 22): This species is very abundant on the roots of aster.

CHRYSANTHEMUM

CHRYSANTHEMUM GALL-MIDGE (Diarthronomyia hyogaia F. Loew)

- Indiana H. F. Dietz (June 22): Among the greenhouse insects this midge is perhaps the most important. The cool weather in May was very favorable to the development of this insect, and where florists were not on their guard during this month heavy infestations took place where the insect had previously been under control but not entirely eradicated.

BLACK CHRYSANTHEMUM APHID (Macrosiphoniella sanborni Gill.)

- Nebraska M. H. Swenk (June 15-July 1): The last two weeks in June were characterized by an unusual abundance of aphids of several kinds. The black chrysanthemum aphid was frequently found doing much injury to chrysanthemums.

GREEN CHRYSANTHEMUM APHID (Aphis rufomaculata Wilson)

- Indiana H. F. Dietz (June 22): This insect has been very abundant on chrysanthemums this year, a condition that is unusual in Indiana greenhouses.

ROSE

ROSE APHID (Macrosiphum rosae L.)

- Indiana H. F. Dietz (June 22): This species is very abundant on roses.

ROSE LEAF-ROLLER (Archips rosaceana Harr.)

- New York R. E. Horsey (June 27): This species was first noted May 29. It is rather common on hybrid perpetual as well as our rose species—about the same as during the last two years but perhaps more scattered in all our plantings of roses, both hybrids and species. It is kept under control by dusting with powdered hellebore, at Highland Park, Rochester.

17

SPINY ROSE GALL (Rhodites bicolor Harr.)

New Hampshire P. R. Lowry (June 29): This insect seriously deformed a number of rose bushes at North Hampton.

IRIS

IRIS BORER (Macronoctua onusta Grote)

Maine C. A. Weigel (June 29): This species is attacking iris at Ocean Park.

New York C. A. Weigel (July): This species was attacking iris at Brooklyn on July 8 and at Mt. Vernon on July 11.

New Jersey C. A. Weigel (July 10): This species is attacking iris at Nutley.

Pennsylvania C. A. Weigel (May 20): This species is attacking iris at Chestnut Hill.

MISCELLANEOUS

SUMAC PSYLLID (Calophya nigripennis Riley)

New Jersey H. B. Weiss (June 22): This psyllid is very abundant in nurseries and elsewhere on black sumac.

DANDELION ROOT APHID (Trama erigeronensis Thos.)

Indiana H. F. Dietz (June 22): This is a bad plant-louse year, this species being very abundant on the roots of dahlia.

ROOT APHIDS (not determined)

Tennessee C. A. Weigel (May 5): Undetermined species of root aphids were found attacking dahlia and larkspur at Monteagle.

GOLDEN GLOW APHID (Macrosiphum rudbeckiae Fitch)

Indiana H. F. Dietz (June 22): This species is very abundant on golden glow.

A NEMATODE (Tylenchus dipsasi Kuhn)

New Jersey H. B. Weiss (June 18): This nematode was found attacking stems and leaves of phlox, finally causing the death of the plants. Stems are enlarged; leaves are rolled in tightly toward the midrib.

SPIREA APHID (Aphis spireaella Schout.)

Indiana H. F. Dietz (June 22): This species is very abundant on Spirea vanhouttei.

NASTURTIUM APHID (Aphis rumicis L.)

- New Jersey C. A. Weigel (June 29): This aphid is attacking nasturtiums at Allendale.
- Indiana H. F. Dietz (June 22): This species is very serious on nasturtium.

LEAF-ROLLER (Archips parallela Rob.)

- New York R. E. Horsey (June 27): I am informed that this was noticed in Rochester about seven years ago but has not been noticeable since until this year.

BOXWOOD LEAF-MINER (Monarthropalpus buxi Labou.)

- New Jersey Orville W. Spicer (June): This insect seems to be totally destroying many box hedges and specimen shrubs in the vicinity of Morristown.

VARIEGATED CUTWORM (Lycophotia margaritosa Haw.)

- Indiana H. F. Dietz (June 22): The variegated cutworm is unusually abundant both out-of-doors and under glass. One florist reports finding 50 half-grown caterpillars in 10 square feet of bench space.

GREENHOUSE LEAF-TYER (Phlyctaenia ferrugalis Huebn.)

- Indiana H. F. Dietz (June 22): The greenhouse leaf-tyer has been found in several greenhouses in widely separated parts of the State doing serious damage to chrysanthemum, snapdragon, and forget-me-not.

STALK BORER (Papaipema sp.)

- Connecticut C. A. Weigel (July 12): The stalk borers are attacking pussywillow and aster at Bridgeport.
- New York C. A. Weigel (July): Stalk borers were reported as attacking pussywillow and aster at Buffalo on July 10 and at Jamaica as attacking dahlias on July 4. They were also reported from Richmond Hill, Flushing, L. I., on July 9 as attacking dahlia and foliage plants.
- Massachusetts C. A. Weigel (June 30): Stalk borers are reported as attacking dahlias at Lynn.
- Missouri C. A. Weigel (July 4): Stalk borers are reported as attacking aster at O'Fallon.

INSECTS AFFECTING MAN AND DOMESTIC ANIMALS

MAN

FLEAS (Siphonaptera)

Missouri L. Haseman: Reports from all over the State are being received concerning the abundance of fleas. They seem to be very abundant from reports received, not being restricted to animals and their harboring places, but proving a general nuisance to man and entering homes.

A MIDGE (Chironomus niveipennis Fab.)

Wyoming Paul R. Needham (June 21): This species has been reported from Yellowstone Park, with the statement that they do not bite or bother in any way except by blocking one's eyes, nose, and mouth. They are about the above quarters by the millions. Determination was made by Dr. O. A. Johannsen.

CHIGGERS (Trombicula tlalzahuatl Murray)

Missouri L. Haseman (June 27): Chigger complaints from towns generally distributed over the State are being received. They seem prevalent about gardens, poultry yards, meadows, etc. It seems as if the past year's chigger attack will be repeated this year.

CATTLE

SCREWORM (Chrysomya macellaria Fab.)

Texas O. G. Babcock (June 13): This species has replaced the black blow-fly almost entirely. It was very numerous a couple of weeks ago, at Sonora, but has been reduced to very small numbers owing to the dry hot weather and practically no summer rains. Very few cases of myiasis in animals have occurred to date. Considerable trapping is being done by the ranchman. (July 20): Screwworm cases have been at a minimum for the past four weeks. No cases have occurred on the Experiment Station ranch. On overstocked ranches where no trapping or carcass burning is being carried out the screwworm cases are the most numerous. New cases are continually showing up. Few flies are present.

STABLE FLY (Stomoxys calcitrans L.)

Kansas Geo. A. Dean (July 7): We are receiving every day over Kansas a large number of reports of the biting fly seriously tormenting cattle, horses, and mules. All through the central part of the main wheat belt of Kansas the biting fly, or stable fly, is unusually bad, owing to the fact that there are a great many old strawstacks rotting because there has been an abundance of rain during the last three or four weeks. In some places these flies are so serious that the farmers are obliged to stop work during the heat of the day. Horses and mules are simply frantic.

OX WARBLE (Hypoderma lineatum DeVill.)

Iowa Fred D. Butcher (July 14): A correspondent reported adults seriously bothering cattle the last week of June.

HORN FLY (Haematobia irritans L.)

New Hampshire P. R. Lowry (July 15): Horn flies have been more numerous than usual at Durham from the latter part of June to the present date, and are annoying cattle considerably.

New York M. D. Leonard (July 2): Flies are quite abundant on a number of cows at North Elba, Essex County, and apparently are causing some annoyance.

Leland J. W. Jones (June 10): This species is quite troublesome on unsprayed stock. Spraying keeps them off most of the day.

Kansas Geo. A. Dean (July 7): We are receiving every day over Kansas a large number of reports of the horn fly seriously tormenting cattle, horses, and mules.

Texas O. G. Babcock (June 13): Horn flies are averaging around 100 flies to the animal. They are barely holding their own, however, apparently beginning to decrease in numbers. There is very little gathering about the horn at the present time. (July 29): Flies are fairly numerous — from 50 to 100 per animal. The weather has been very dry and hot during the past month.

A HORSE FLY (Tabanus laticornis Macq.)

New York R. W. Wells (June 25): Specimens were sent by A. D. Davies and reported by him to be of serious annoyance to cattle. (June 28): This species was very abundant and seriously annoying horses and cattle throughout the month of June. The greatest abundance was about June 15.

A HORSE FLY (Tabanus lineola Fab.)

New Hampshire P. R. Lowry (July 5): This species is annoying cattle considerably in the field at Durham.

POLLTRY

CHICKEN MITE (Dermanyssus gallinae Redi)

Texas O. G. Babcock (July 20): Several complaints have come to hand during the past two weeks. Investigations showed that good control measures were not being put into practice.

FOWL TICK (Argas miniatus Koch)

Texas

O. G. Babcock (July 20): Blue bugs are fairly numerous in most of the poultry houses. Average infestations prevail at Sonora.

GOATS

SUCKING GOAT LOUSE (Linognathus stenopsis Burm.)

Texas

O. G. Babcock (July 20): Where dipping was not practiced the kid crop is severely retarded.

I N S E C T S I N F E S T I N G H O U S E S A N D P R E M I S E S

TERMITES (Reticulitermes flavipes Kol.)

Missouri

L. Haseman (June 27): Many reports have come in this year concerning these so-called white ants. Buildings, hotels, and other timbers have been reported heavily infested. These reports seem to be generally distributed over the State, many coming from near the Kansas border, in and about Jackson County.

DERMESTIDAE

Nebraska

M. H. Swenk (July 1): An unusual number of reports of infestation in houses by carpet beetles has been received this spring, especially the past two weeks.

